

Transmittal Letter to the United States
Designated/Elected Office (DO/EO/US)

10/069535 Page 1
FORM PTO-1390

Boxet No. : **KS-115PCT**
U.S. Application No. :
International Application No. : **PCT/EP00/03011**
International Filing Date. : **April 5, 2000**
Priority Date Claimed : **April 26, 1999**
Title of Invention : **METHOD AND DEVICE FOR SHAPING THERMOPLASTIC HOLLOW BOARDS**
Applicant(s) for (DO/EO/US) : **Markus Feurer**

3005 Rec'd PTO 25 OCT 2001

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:


1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures 35 U.S.C. 371 (f) at any time rather than delay examination until the expiration of the applicable time limit set forth in 35 U.S.C 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date
5. ☒ A copy of the International Application as filed [35 U.S.C. 371(c)(2)].
 - a) ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b) ☐ has been transmitted by the international Bureau.
 - c) ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English [35 U.S.C.371(c)(2)].
7. ☐ Amendments to the claims of the International Application under PCT Article 19 [35 U.S.C.371(c)(3)].
 - a) ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b) ☐ have been transmitted by the International Bureau.
 - c) ☐ have not been made; however, the time limit for making such amendments has **NOT** expired
 - d) ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 [35 U.S.C.371(c)(3)].
9. ☒ An oath or declaration of the inventor(s) [35 U.S.C.371(c)(4)].
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 [35 U S C 371(c)(5)]

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 C.F.R. 1.97 and 198.
12. ☒ An Assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ (other items or information) **Two sheets of drawings, PTO-1449 w/12 references and International Search Report**

EXPRESS MAIL No.: EL 862 852 305 US Deposited: October 25, 2001

I hereby certify that this correspondence is being deposited with the United States Postal Service Express mail under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231.


Friedrich Kueffner

October 25, 2001
Date

17. ☒ The following fees are submitted:

BASIC NATIONAL FEE [37 CFR 1.492(a)(1)-(5)]:

- ☒ Search Report has been prepared by the EPO or JPO..... \$ 890.00
- ☐ International preliminary examination fee paid to USPTO [37 CFR 1.482]:..... \$ 710.00
- ☐ No International preliminary examination fee paid to USPTO [37 CFR 1.482]
but International search fee paid to USPTO [37CFR 1.445(a)(2)]: \$ 740.00
- ☐ Neither International preliminary examination fee [37 CFR 1.482] nor
International search fee [37 CFR 1.445(a)(2)] paid to USPTO:..... \$ 1040.00
- ☐ International preliminary examination fee paid to USPTO [37 CFR 1.482]
and all claims satisfied provisions of PCT Article 33 (2) to (4):..... \$ 100.00

ENTER APPROPRIATE BASIC FEE AMOUNT: \$ 890.00

Surcharge of \$ 130.00 for furnishing the oath or declaration later than 20 30 months
from the earliest claimed priority date [37 CFR 1.492(e)]

Claims	filed	Extra	Rate
Total Claims	6	-20=	x \$ 18.=
Indep. Claims	1	- 3=	x \$ 84.=
Multiple Dependent Claims (if applicable) + \$ 280.=			

TOTAL OF ABOVE CALCULATIONS: \$ 890.00

Reduction by $\frac{1}{2}$ for filing by small entity, if applicable.

(divided by 2)

SUBTOTAL: \$ 890.00

Processing fee of \$ 130.00 for furnishing the English translation later than 20 30 months
from the earliest claimed priority date [37 CFR 1.492(f)]

TOTAL NATIONAL FEE: \$ 890.00

Fee for recording the enclosed assignment [37 CFR 1.21(h)] the assignment must be
accompanied by an appropriate cover sheet [37 CFR 3.28,3.31]. \$ 40.00 per property

TOTAL FEES ENCLOSED: \$ 930.00

AMOUNT TO BE REFUNDED: Refunded \$

AMOUNT TO BE CHARGED: Charged \$

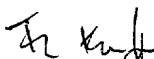
- a) ☒ A check in the amount of \$ 930.00 to cover the above fees is enclosed.
- b) ☐ Please charge my Deposit Account No. 11-1835 in the amount of \$ to cover the above fees.
A duplicate copy of this sheet is enclosed.
- c) ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 11-1835. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 36 CFR 1.494 or 1.495 has not been met, a petition to revive [37 CFR 1.137(a) or (b)] must
be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Friedrich Kueffner
342 Madison Avenue
Suite 1921
New York, NY 10173

Friedrich Kueffner
Name


signature

29,482
Reg. No.

October 25, 2001
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

KS-115PCT

Applicant(s) : Markus Feurer
Serial No. : NOT YET KNOWN (PCT/EP00/03011)
Int. Filed : April 5, 2000
For : METHOD AND DEVICE FOR SHAPING
THERMOPLASTIC HOLLOW BOARDS

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

S I R:

In advance of the first office action, please amend the claims
as follows:

IN THE CLAIMS

Replace current claims 1 - 6 by the enclosed amended claims
1 - 6. A marked-up version of amended claims 1 - 6 is also enclosed.

REMARKS

Claims 1 - 6 are in the application.

As a result of the foregoing amendment, the claims have been
amended to remove improper multiple dependencies.

Any additional fees or charges required at this time in connection
with the application may be charged to our Patent and Trademark Office
Deposit Account No. 11-1835.

Respectfully submitted,

F. Kueffner

Friedrich Kueffner Reg. No. 29,482
342 Madison Avenue
New York, NY 10173
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October 25, 2001

FK:ml

ENCLS:

Amended Claims;
Marked-Up Version.

EXPRESS MAIL No.: EL 862 852 305 US Deposited: October 25, 2001

I hereby certify that this correspondence is being deposited with the United States Postal Service Express mail under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231.

F. Kueffner

Friedrich Kueffner

CLEAN VERSION OF AMENDED CLAIMS

1. Method for shaping hollow boards (1, 11) of thermoplastic material having at least one open cavity (7, 17) in the interior of the board open toward the board edge (8, 18), wherein the cavity in the interior of the board is sealed at the board edge and is thus closed off to the exterior in a substantially gas-tight way and wherein the hollow board (1, 11) to be shaped is softened by heating and in the softened state is shaped by external loading with a shaping pressure (9, 19) while the cavity (17) is closed off to the exterior in a substantially gas-tight way, wherein the cavity (17) is sealed while leaving open at least one supply opening (21) for the filling medium to be supplied to the cavity (17) or in that, after complete closure of the cavity (17), at least one supply opening (21) for a filling medium is introduced into the wall of the cavity and in that the cavity (17), closed off to the exterior in a substantially gas-tight way, is supplied with at least one filling medium and in that the hollow board (11) to be shaped is shaped by external loading with the shaping pressure (19) while the cavity is filled with the filling medium.
2. Method according to claim 1, wherein the cavity (17) is sealed by compressing the board edge (8, 18).

3. Method according to claim 1, wherein a sealing sleeve is placed onto the board edge (18) for ceiling the cavity (17).
4. Method according to claim 1, wherein the cavity (17), closed to the exterior in a substantially gas-tight way, is loaded with a filling medium whose temperature surpasses the initial temperature of the hollow board (11) to be shaped.
5. Method according to claim 1, wherein the cavity (17), closed off to the exterior in a substantially gas-tight way, is loaded with at least one gaseous and/or at least one liquid filling medium.
6. Method according to claim 1, wherein the hollow cavity (17), closed off to the exterior in a substantially gas-tight way, is filled with steam as a filling medium.

MARKED-UP VERSION OF AMENDED CLAIMS

1. Method for shaping hollow boards (1, 11) of thermoplastic material having at least one open cavity (7, 17) in the interior of the board open toward the board edge (8, 18), wherein the cavity in the interior of the board is sealed at the board edge and is thus closed off to the exterior in a substantially gas-tight way and wherein the hollow board (1, 11) to be shaped is softened by heating and in the softened state is shaped by external loading with a shaping pressure (9, 19) while the cavity (17) is closed off to the exterior in a substantially gas-tight way, [characterized in that] wherein the cavity (17) is sealed while leaving open at least one supply opening (21) for the filling medium to be supplied to the cavity (17) or in that, after complete closure of the cavity (17), at least one supply opening (21) for a filling medium is introduced into the wall of the cavity and in that the cavity (17), closed off to the exterior in a substantially gas-tight way, is supplied with at least one filling medium and in that the hollow board (11) to be shaped is shaped by external loading with the shaping pressure (19) while the cavity is filled with the filling medium.
2. Method according to claim 1, [characterized in that] wherein the cavity (17) is sealed by compressing the board edge (8, 18).

3. Method according to [one of the preceding claims, characterized in that] claim 1, wherein a sealing sleeve is placed onto the board edge (18) for ceiling the cavity (17).
4. Method according to [one of the preceding claims, characterized in that] claim 1, wherein the cavity (17), closed to the exterior in a substantially gas-tight way, is loaded with a filling medium whose temperature surpasses the initial temperature of the hollow board (11) to be shaped.
5. Method according to [one of the preceding claims, characterized in that] claim 1, wherein the cavity (17), closed off to the exterior in a substantially gas-tight way, is loaded with at least one gaseous and/or at least one liquid filling medium.
6. Method according to [one of the preceding claims, characterized in that] claim 1, wherein the hollow cavity (17), closed off to the exterior in a substantially gas-tight way, is filled with steam as a filling medium.

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Translation of Amended Pages of WO 00/64659 (PCT/EP00/03011)

Method for Shaping Thermoplastic Hollow Boards

The invention relates to a method for shaping hollow boards that are comprised of thermoplastic material and have at least one cavity within the board interior being open toward the edge of the board, wherein the cavity in the interior of the board is sealed at the board edge and is thus closed off to the exterior in a substantially gas-tight way and wherein the hollow board to be shaped is softened by heating and is shaped in the softened state by external loading with a shaping pressure while the cavity is closed off in a substantially gas-tight way.

Known thermoplastic hollow boards are comprised of two parallel cover layers as well as spacers arranged therebetween, for example, in the form of separating stays or cup-shaped projections of an intermediate layer provided between the cover layers. In this connection, in the interior of the hollow boards, i.e., between their cover layers, cavities are provided which are open toward the board edge. For the shaping process, such thermoplastic hollow boards open toward the edge are softened by supplying heat, as is known in the art, and are loaded with an external shaping pressure in the softened state, for example, by means of deepdrawing devices or presses. Because of the destabilization of the hollow board in itself resulting from softening, in particular, of the spacers arranged between its cover layers, the shaping of the hollow boards according to the methods of the prior art or by means of the known devices often entails an undesirable change of the board structure, primarily an undesirable irreversible compression of the hollow boards perpendicularly to the cover layers.

A method of the aforementioned kind is disclosed in US-A-4,172,749. Here, the hollow boards are shaped with cavities being open toward the edge. The cavities are filled with a gaseous medium, for example, air. Before the start of the actual shaping process, the gas-filled cavities are closed in a gas-tight way at the edge of the hollow board. The hollow board is finally shaped with the cavities being closed in this way. The gaseous medium present within the interior of the cavities thus builds up a pressure which counteracts the external shaping pressure and is supposed to prevent undesirable compression of the hollow board to be shaped.

Based on this prior art, the present invention has the object to optimize the shape stability of hollow boards to be shaped or formed.

This object is solved according to the invention in that the at least one cavity within the interior of the board is sealed by leaving open at least one supply opening for a filling medium to be supplied to the cavity or in that, after complete closure of the cavity, at least one supply opening for the filling medium is introduced into the wall of the cavity and that the cavity, which is closed off to the exterior in a substantially gas-tight way, is loaded with at least one filling medium and in that the hollow board to be shaped is shaped by being loaded externally with the shaping pressure while the cavity is filled with the filling medium. The one or more filling media assist pressure build-up in the interior of the cavity. By leaving open at least one supply opening for the filling medium to be supplied to the cavity, the condition is realized in a simple way to be able to supply the filling medium to the cavity. The medium enclosed within the interior of the cavity exerts a counterpressure to the external shaping pressure, when the hollow board is loaded from the exterior

with the shaping pressure, and thus provides a stabilization of the hollow board. Despite its softening, the hollow board can therefore maintain its proper structure even during the shaping process.

For sealing the cavity at the board edge, several possibilities are offered according to the invention. For example, a sealing sleeve can be placed onto the board edge. Preferably, the cavity in the interior of the board is sealed by compressing the board edge. This method feature is characterized by a simple realization. In this connection, the compression of the edge of the board can be carried out when the hollow board is "cold" as well as when the hollow board is heated and thus at least partially plasticized.

In a further preferred embodiment of the method according to the invention, a filling medium whose temperature surpasses the initial temperature of the hollow board to be shaped is employed. In this case, the filling medium not only contributes to the build-up of inner pressure within the cavity of the hollow board but is also moreover utilized for heating and thus plasticizing the hollow board. In this connection, the plasticization of the hollow board can be realized exclusively by means of the filling medium; however, the filling medium can also be used only for assisting additional heat sources for supplying heat to the hollow board from the exterior. In the latter case, especially short cycle times result for shaping of the corresponding hollow boards.

In the context of the method according to the invention, the cavity in the interior of the hollow board can be loaded with almost any flowable filling medium, in particular, with almost any gaseous or liquid filling medium. In this connection, it is especially advantageous to supply the cavity, which is closed off to the exterior in a substantially gas-tight way, with steam as a filling

medium. Steam can be generated in a simple way and is characterized, in particular, by being ecologically innocuous.

In the following the invention will be described in more detail with the aid of schematic illustrations. It is shown in:

Figs. 1 and 2 configurations of hollow boards of thermoplastic material with cavities within the interior of the board;

Fig. 3 a schematic section of the hollow board according to Fig. 1 with a cavity in the interior of the board sealed according to a conventional method; and

Fig. 4 a schematic section of the hollow board according to Fig. 2 with cavities in the interior of the board sealed according to the invention.

According to Fig. 1, a hollow board 1 of polypropylene, as they are, for example, used for manufacturing packaging containers or trunk bottom plates of vehicles, are of a three-layer configuration. An intermediate layer 2 with downwardly open cup-shaped projections 3 is welded to an upper cover layer 4 and a lower cover layer 5. The cup-shaped projections 3 are arranged at a spacing to one another and form together with the walls 6 gas enclosures containing atmospheric air. A part of the walls 6 is formed by the lower cover layer 5. Since the cup-shaped projections 3 are arranged in a staggered fashion, a contiguous cavity 7 results around them in the interior of the hollow board 1 which cavity is open toward the board edge 8 of the hollow board 1.

In a manner known in the art, for shaping the hollow board 1, first its board edge 8 is compressed about the entire circumference of the board. The conditions illustrated in Fig. 3 then result. The section plane of Fig. 3 is identified in Fig. 1 with reference numeral III. After the compression of the board edge 8, the cavity 7 in the interior of the hollow board 1 is sealed in a gas-tight way to the exterior. The board edge 8 is maintained in the compressed state by corresponding pressure exertion schematically illustrated in Fig. 3.

In the state according to Fig. 3, the hollow board 1 is loaded with steam from the exterior and is heated in this way. As a result of heating, plasticization of the hollow board 1 takes place. The softened hollow board 1 is finally shaped, for example, so as to cause depressions within the hollow board 1, by means of the shaping pressure, indicated in Fig. 3 by the arrow 9. During loading of the hollow board 1 with the external shaping pressure 9, the atmospheric air in the cavity 7 in the interior of the hollow board 1, enclosed by the pressure-loaded board edge 8, acts as an air cushion which exerts a pressure counteracting the shaping pressure 9 and thus prevents a compression of the softened hollow board 1 by the shaping pressure 9.

After the shaping process, the obtained shaped part is stabilized over all by cooling. The deformed board edge 8 can then be removed.

As illustrated in Fig. 2, a hollow board 11 is comprised of an upper cover layer 14, a lower cover layer 15 as well as spacers in the form of separating stays 13 arranged between the upper cover layer 14 and the lower cover layer 15. In the interior of the hollow board 1, cavities 17 are present, which are delimited by the

upper cover layer 14, the lower cover layer 15, as well as two oppositely positioned separating stays 13, wherein the cavities 17 open toward the board edge 18. The hollow board 11 is also comprised of polypropylene.

As already described in the case of the hollow board 1 according to Figs. 1 and 3, first its board edge 18 is compressed about the entire circumference of the hollow board 11 for shaping the hollow board 11. However, in contrast to the above described method, before deforming the board edge 18, hollow injection needles 20 projecting into the cavities 17 are positioned between the upper cover layer 14 and the lower cover layer 15. The hollow injection needles 20 ensure that, after compression of the plate edge 18, supply openings 21 for the filling medium to be introduced into the cavity 17 remain open. This is illustrated in detail in Fig. 4. In Fig. 4 it is also indicated that the board edge 18 after compression remains pressure-loaded.

According to Fig. 4, the hollow injection needles 20 are connected by check valves 22 to supply lines 23 for the filling medium. At the end of the cavities 17 facing away from the hollow injection needles 20, the board edge 18 is compressed as described in connection with Figs. 1 and 3. Over all, the hollow cavities 17 are closed off to the exterior in a substantially gas-tight way. After compression of the board edge 18, filling medium in the form of steam is supplied via the hollow injection needles 20 into the interior of the cavities while pressure loading of the board edge 18 still occurs. This steam supplied via the hollow injection needles 20, in cooperation with steam with which the hollow board 1 is simultaneously loaded from the exterior, effects heating and plasticization of the hollow board. The hollow board 11 is also shaped after softening by means of an external shaping pressure,

symbolically indicated in Fig. 3 by an arrow 19. The mixture of atmospheric air and steam present in the interior of the cavities 17 counteracts in the above described way, when the check valves 22 are in their closed position, an undesirable structural change of the hollow board 11. If needed, filling medium can be supplied to the cavities 17 even during loading of the hollow board 11 with the external shaping pressure 19.

After cooling and the resulting solidification of the shaped hollow board 11, the hollow injection needles 20 are pulled out of the supply openings 21 and, subsequently, the deformed board edge 18 is removed. Alternatively, the hollow injection needles 20 can be removed already before loading of the hollow board 11 with the external shaping pressure 19. In this case, immediately after pulling out the hollow injection needles 20, the supply openings 21 for the previously supplied filling medium which remain within the board edge 18 must be sealed tightly before the shaping of the hollow board 11 can be started.

Claims

1. Method for shaping hollow boards (1, 11) of thermoplastic material having at least one open cavity (7, 17) in the interior of the board open toward the board edge (8, 18), wherein the cavity in the interior of the board is sealed at the board edge and is thus closed off to the exterior in a substantially gas-tight way and wherein the hollow board (1, 11) to be shaped is softened by heating and in the softened state is shaped by external loading with a shaping pressure (9, 19) while the cavity (17) is closed off to the exterior in a substantially gas-tight way, characterized in that the cavity (17) is sealed while leaving open at least one supply opening (21) for the filling medium to be supplied to the cavity (17) or in that, after complete closure of the cavity (17), at least one supply opening (21) for a filling medium is introduced into the wall of the cavity and in that the cavity (17), closed off to the exterior in a substantially gas-tight way, is supplied with at least one filling medium and in that the hollow board (11) to be shaped is shaped by external loading with the shaping pressure (19) while the cavity is filled with the filling medium.
2. Method according to claim 1, characterized in that the cavity (17) is sealed by compressing the board edge (8, 18).
3. Method according to one of the preceding claims, characterized in that a sealing sleeve is placed onto the board edge (18) for sealing the cavity (17).

4. Method according to one of the preceding claims, characterized in that the cavity (17), closed to the exterior in a substantially gas-tight way, is loaded with a filling medium whose temperature surpasses the initial temperature of the hollow board (11) to be shaped.
5. Method according to one of the preceding claims, characterized in that the cavity (17), closed off to the exterior in a substantially gas-tight way, is loaded with at least one gaseous and/or at least one liquid filling medium.
6. Method according to one of the preceding claims, characterized in that the hollow cavity (17), closed off to the exterior in a substantially gas-tight way, is filled with steam as a filling medium.

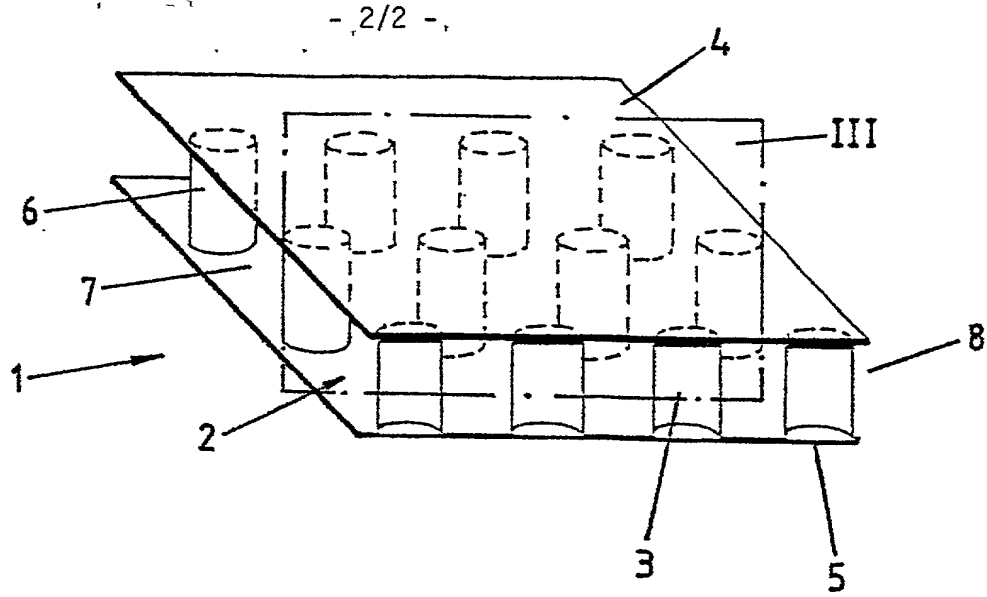


Fig. 1

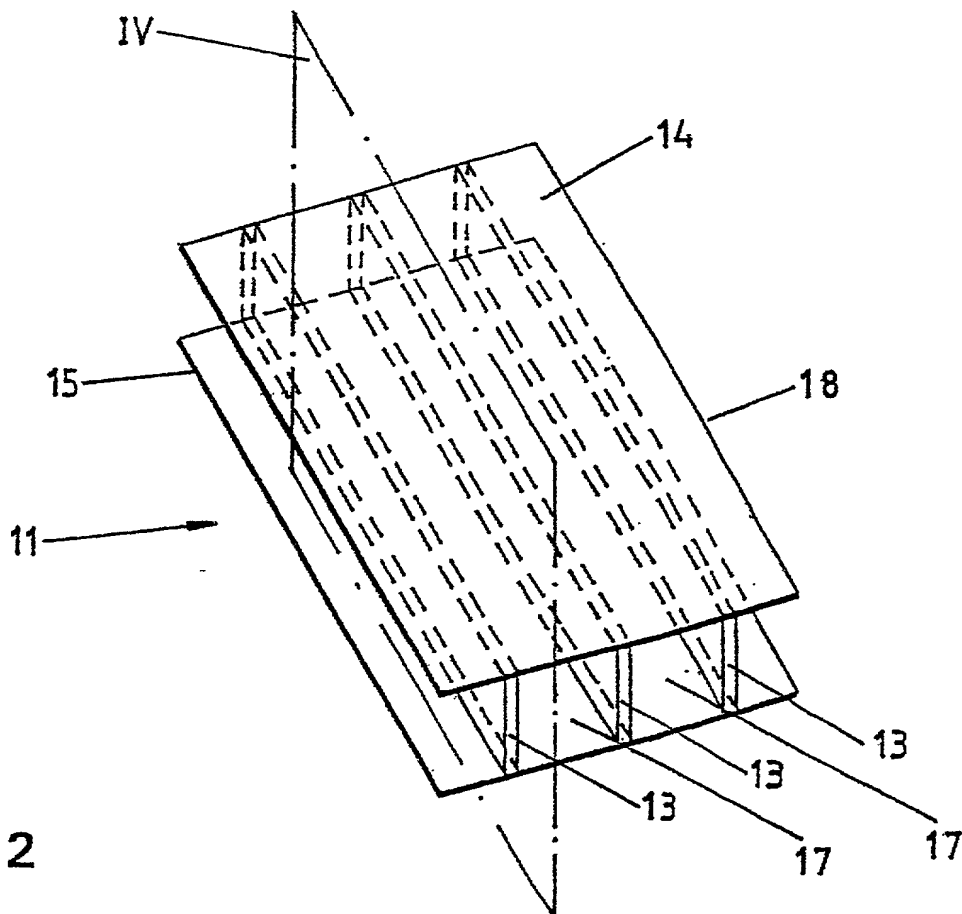


Fig. 2

- 1/2 -

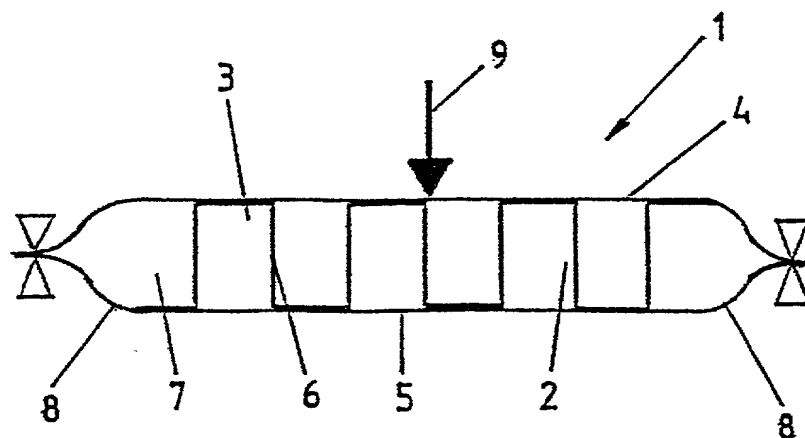


Fig. 3

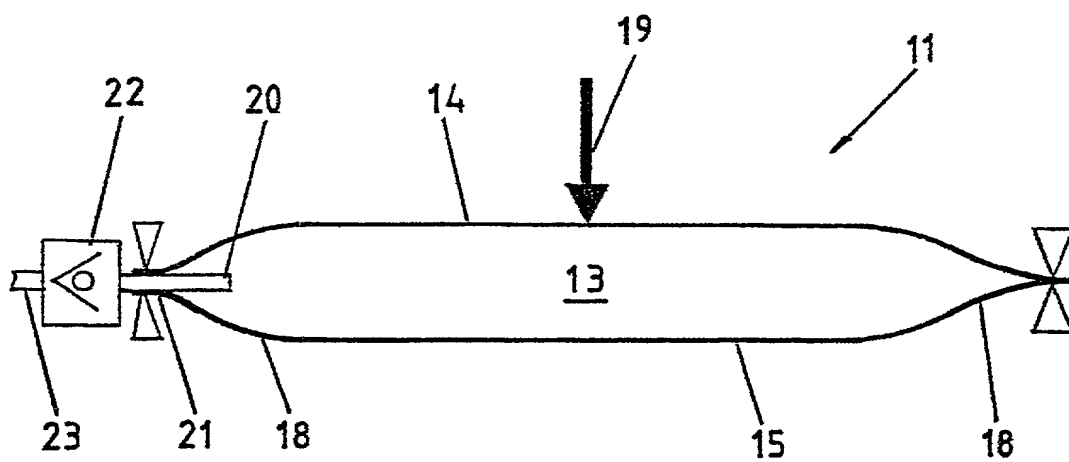


Fig. 4

As a below named inventor, I hereby declare that:
My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: METHOD AND DEVICE FOR SHAPING THERMOPLASTIC HOLLOW BOARDS

the specification of which (check only one item below):

☐ is attached hereto.
☐ was filed as United States application
Serial No. _____
on _____,
and was amended
on _____ (if applicable).

☒ was filed as PCT international application

Number PCT/EP00/03011
on April 5, 2000,
and was amended under PCT Article 19
on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

COUNTRY (if PCT, indicate PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
GERMANY	199 18 784.3	26 April 1999	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO

Combined Declaration For Parent Application and Power of Attorney (Continued)
(includes Reference to PCT International Applications)

Docket No.
KS-115

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of the application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty of disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:

U.S. APPLICATIONS		STATUS (CHECK ONE)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NO.		

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

FRIEDRICH KUEFFNER, REG. NO. 29,482

Send Correspondence to:

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(212) 986-3114

2	FULL NAME OF INVENTOR	<u>Family Name</u> FEURER	<u>First Given Name</u> Markus	<u>Second Given Name</u>
100	RESIDENCE & CITIZENSHIP	<u>City</u> Malsch Muggensturm DEX	<u>State Or Foreign Country</u> Germany	<u>Citizenship</u> Germany
1	POST OFFICE ADDRESS	<u>Post Office Address</u> Friedrich Ebert Str. 21 Albert Schweitzer Str. 2	<u>City</u> 76461 Muggensturm D-76316 Malsch	<u>State & Zip Code</u> Germany

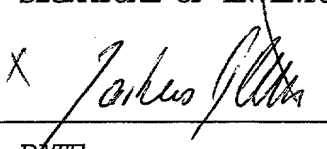
Combined Declaration For Parent Application and Power of Attorney (Continued)
(includes Reference to PCT International Applications)

Docket No.
KS-115

2 0 2	FULL NAME OF INVENTOR	<u>Family Name</u>	<u>First Given Name</u>	<u>Second Given Name</u>
	RESIDENCE & CITIZENSHIP	<u>City</u>	<u>State Or Foreign Country</u>	<u>Citizenship</u>
	POST OFFICE ADDRESS	<u>Post Office Address</u>	<u>City</u>	<u>State & Zip Code</u>

2 0 2	FULL NAME OF INVENTOR	<u>Family Name</u>	<u>First Given Name</u>	<u>Second Given Name</u>
	RESIDENCE & CITIZENSHIP	<u>City</u>	<u>State Or Foreign Country</u>	<u>Citizenship</u>
	POST OFFICE ADDRESS	<u>Post Office Address</u>	<u>City</u>	<u>State & Zip Code</u>

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE OF INVENTOR 201 X 	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
DATE X 12. 09. 2001	DATE	DATE